



**REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI TROPICAL WEATHER OUTLOOK**

**DEMS-RSMC TROPICAL CYCLONES NEW DELHI DATED 28.11.2023**

**TROPICAL WEATHER OUTLOOK FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND THE ARABIAN SEA) VALID FOR NEXT 168 HOURS ISSUED AT 0730 UTC OF 28.11.2023 BASED ON 0300 UTC OF 28.11.2023.**

**BAY OF BENGAL:**

YESTERDAY'S LOW PRESSURE AREA OVER SOUTH ANDAMAN SEA & ADJOINING MALACCA STRAIT MOVED NEARLY WESTWARDS AND LAY OVER SOUTH ANDAMAN SEA AT 0300 UTC OF TODAY, THE 28TH NOVEMBER.

IT IS LIKELY TO MOVE WEST-NORTHWESTWARDS AND INTENSIFY INTO A DEPRESSION OVER SOUTHEAST BAY OF BENGAL AROUND 30TH NOVEMBER, 2023. THEREAFTER, IT IS LIKELY TO MOVE NORTHWESTWARDS AND INTENSIFY FURTHER INTO A CYCLONIC STORM OVER SOUTHWEST & ADJOINING SOUTHEAST BAY OF BENGAL DURING SUBSEQUENT 48 HOURS.

LATEST ASCAT PASS AT 0256 UTC INDICATED, SYSTEM CENTRED NEAR 4.2N/93.5E WITH MAXIMUM SUSTAINED WIND SPEED (MSW) OF 15-20 KNOTS IN THE NORTHERN SECTOR. INSAT -3D IMAGERY AT 0300 UTC, INDICATED LOW LEVEL CYCLONIC CENTERED NEAR 7.4N/96.0E. THE SYNOPTIC ANALYSIS ALSO INDICATE LOW PRESSURE AREA OVER SOUTH ANDAMAN SEA NEAR 7.0/ 93E. MULTISAT WINDS AT 0300 UTC OF 28<sup>TH</sup> NOVEMBER, INDICATE THE SYSTEM NEAR 7.9N/92.4E.

ASSOCIATED MAXIMUM SUSTAINED WIND SPEED IS 10 KNOTS GUSTING TO 20 KNOTS. ESTIMATED CENTRAL PRESSURE IS 1008 HPA. SEA CONDITION IS LIKELY TO BE MODERATE TO ROUGH OVER THE SOUTH ANDAMAN SEA AND ADJOINING ANDAMAN & NICOBAR ISLANDS.

ASSOCIATED SCATTERED LOW AND MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LAY OVER SOUTH ANDAMAN SEA AND ADJOINING STRAIT OF MALACCA & NEIGHBOURHOOD. MINIMUM CLOUD TOP TEMPERATURE IS MINUS 85 DEG CELSIUS.

SCATTERED TO BROKEN LOW AND MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LAY OVER SOUTH BAY OF BENGAL AND SOUTH ANDAMAN SEA. SCATTERED LOW AND MEDIUM CLOUDS WITH EMBEDDED MODERATE TO INTENSE CONVECTION LAY OVER EASTCENTRAL BAY OF BENGAL, NORTH ANDAMAN SEA AND WEAK TO MODERATE CONVECTION LAY OVER WESTCENTRAL BAY OF BENGAL.

**PRE-GENESIS TRACK & INTENSITY FORECASTS:**

Date/Time (UTC)	Position (Lat. °N/ long. °E)	Maximum sustained surface wind speed (Kmph)	Category of cyclonic disturbance
28.11.23/0300	07.0/94.0	15-25 kmph gusting to 35 kmph	Low Pressure Area
28.11.23/1200	07.4/92.8	20-25 kmph gusting to 35 kmph	Low Pressure Area
29.11.23/0000	07.8/91.6	25-30 kmph gusting to 40 kmph	Well Marked Low Pressure Area
29.11.23/1200	08.4/90.4	30-40 kmph gusting to 50 kmph	Well Marked Low Pressure Area

Cloud distribution: (a) Isolated: <25%, Scattered:25-50%, Broken: 51-75%, Solid:>75%, Convection Intensity: (a) Weak: Cloud Top Temperature (CTT) >-25°C, (b) Moderate: CTT: - 25°C to -40°C, (c) Intense: CTT: - 41°C to -70°C and (d) Very Intense: : Less than -70°C  
PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION):NIL: 0%, LOW: 1-33%, , MODERATE: 34-66% AND HIGH: 67-100%  
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30.11.23/0000	09.0/89.2	40-50 kmph gusting to 60 kmph	Depression
30.11.23/1200	09.7/88.3	45-55 kmph gusting to 65 kmph	Depression
01.12.23/0000	10.4/87.5	50-60 kmph gusting to 70 kmph	Deep Depression
01.12.23/1200	11.2/86.4	55-65 kmph gusting to 75 kmph	Deep Depression
02.12.23/0000	12.0/85.3	60-70 kmph gusting to 80 kmph	Cyclonic Storm

**\*PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION) DURING NEXT 168 HRS:**

24 HOURS	24-48 HOURS	48-72 HOURS	72-96 HOURS	96-120 HOURS	120-144 HOURS	144-168 HOURS
NIL	LOW	MOD	HIGH	HIGH	HIGH	HIGH

**\*NOTE: EVERY 24HR FORECAST IS VALID UPTO 0300 UTC (0830 IST) OF NEXT DAY**

**ARABIAN SEA:**

YESTERDAY'S CYCLONIC CIRCULATION OVER SOUTHWEST ARABIAN SEA PERSISTED OVER THE SAME REGION WITH EXTENSION UPTO 4.5 KM ABOVE MEAN SEA LEVEL .

SCATTERED TO BROKEN LOW AND MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LAY OVER SOUTH ARABIAN SEA. SCATTERED LOW AND MEDIUM CLOUDS WITH EMBEDDED ISOLATED MODERATE TO INTENSE CONVECTION LAY OVER CENTRAL ARABIAN SEA AND COMORIN AREA.

**\*PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION) DURING NEXT 168 HRS:**

24 HOURS	24-48 HOURS	48-72 HOURS	72-96 HOURS	96-120 HOURS	120-144 HOURS	144-168 HOURS
NIL	NIL	NIL	NIL	NIL	NIL	NIL

**\*NOTE: EVERY 24HR FORECAST IS VALID UPTO 0300 UTC (0830 IST) OF NEXT DAY**

**Remarks:**

MADDEN JULIAN OSCILLATION (MJO) IS CURRENTLY IN PHASE 3 WITH AMPLITUDE GREATER THAN 1. IT WOULD MOVE ACROSS PHASES 3 AND 4 WITH AMPLITUDE GREATER THAN 1 DURING 28<sup>TH</sup> NOVEMBER TO 6<sup>TH</sup> DECEMBER. THUS, MJO WOULD SUPPORT CYCLOGENESIS OVER THE BAY OF BENGAL (BOB) REGION TILL 6<sup>TH</sup> DECEMBER. SEA SURFACE TEMPERATURE IS 28-30<sup>0</sup>C OVER MAJOR PARTS OF BOB. TROPICAL CYCLONE HEAT POTENTIAL IS 80-100 KJ/CM<sup>2</sup> OVER SOUTH ANDAMAN SEA, 100-120 KJ/CM<sup>2</sup> OVER PARTS OF EASTCENTRAL AND ADJOINING SOUTHEAST BOB. THE NCICS BASED FORECASTS FOR EQUATORIAL WAVES INDICATE STRENGTHENING OF WESTERLY WINDS ALONGWITH PRESENCE OF EQUATORIAL ROSSBY WAVES & MJO OVER SOUTH BOB AND. EASTERLY WINDS (3-5 MPS) OVER CENTRAL BOB DURING 28<sup>TH</sup>-30<sup>TH</sup> NOVEMBER. ALL THESE LARGE SCALE FEATURES ARE FAVOURABLE FOR CYCLOGENESIS (FORMATION OF DEPRESSION) OVER SOUTHEAST BOB.

CURRENT ENVIRONMENTAL FEATURES INDICATE, POSITIVE LOW LEVEL VORTICITY OF 50-60X10<sup>-6</sup>S<sup>-1</sup> OVER SOUTH ANDAMAN SEA WITH VERTICAL EXTENSION UPTO 500 HPA LEVEL. POSITIVE LOW LEVEL CONVERGENCE IS ABOUT 10-20 X 10<sup>-5</sup> S<sup>-1</sup> OVER SOUTH ANDAMNA SEA. POSITIVE UPPER LEVEL DIVERGENCE IS ABOUT 10-20 X 10<sup>-5</sup> S<sup>-1</sup> OVER SOUTH ANDAMAN SEA. WIND SHEAR IS 10-20 KNOTS OVER SOUTH BOB AND SOUTH ANDAMAN SEA.

AS PER TODAY'S GUIDANCE, MODELS ARE INDICATING DELAYED FORMATION OF DEPRESSION. THERE IS LARGE VARIATION AMONG VARIOUS MODELS WRT DATE OF FORMATION OF DEPRESSION WITH DATE VARYING BETWEEN 30<sup>TH</sup> NOVEMBER-2<sup>ND</sup> DECEMBER. HOWEVER, MOST OF THE MODELS ARE INDICATING INITIAL WEST-NORTHWESTWARDS MOVEMENT, FOLLOWED BY NORTH-NORTHWESTWARDS MOVEMENT. SOME OF THE MODELS ARE ALSO INDICATING NORTHEASTWARDS RECURVATURE. THERE IS CONSENSUS AMONG VARIOUS MODELS WRT INTENSIFICATION INTO CYCLONIC STORM AND HIGHER INTENSITY STORM.

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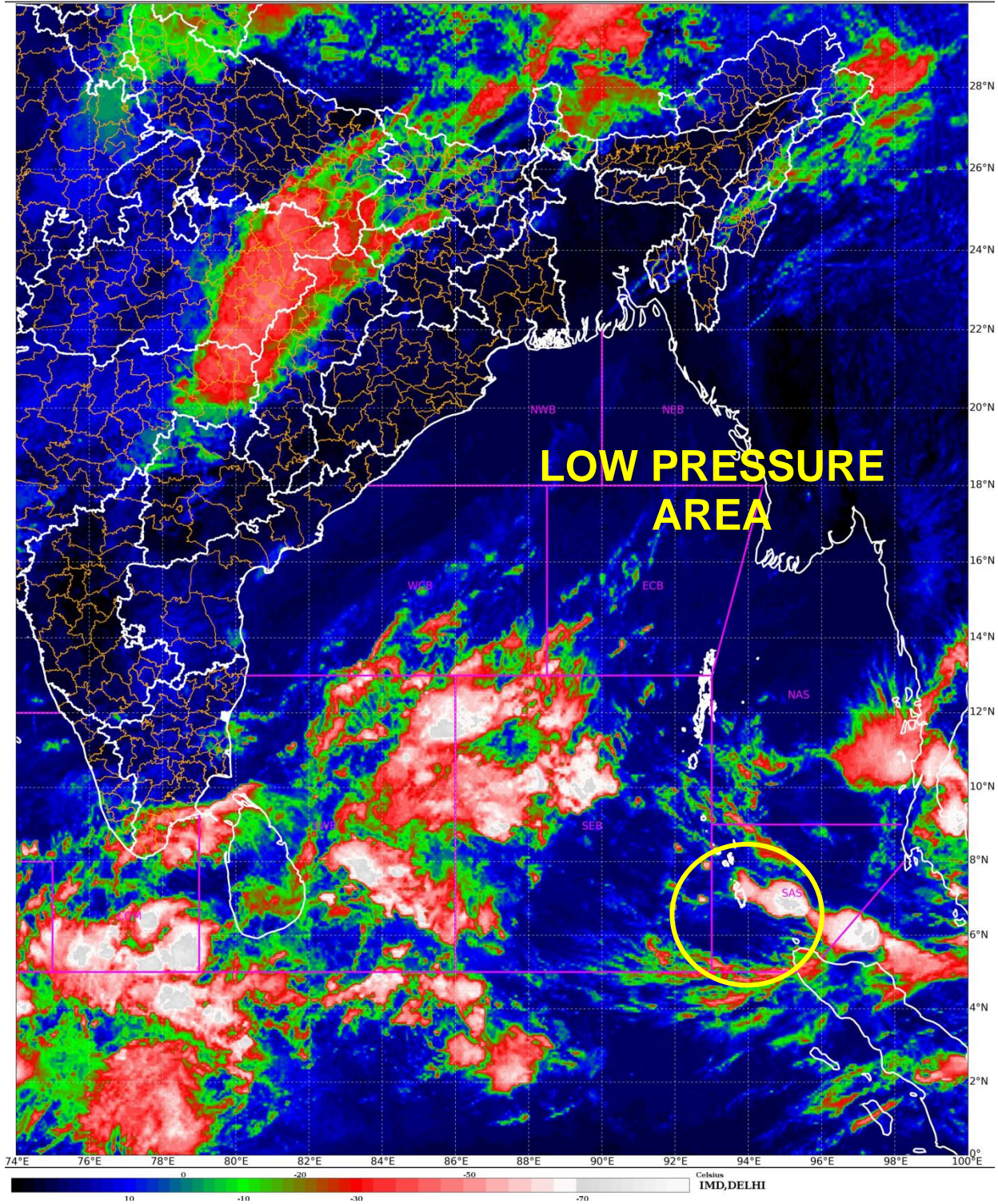
IMD GFS IS INDICATING EXTENDED LOW PRESSURE AREA OVER SOUTHEAST BAY OF BENGAL ON 28<sup>TH</sup>, DEPRESSION ON 1<sup>ST</sup> DECEMBER OVER SOUTHEAST BOB WITH RAPID INTENSIFICATION INTO A VERY SEVERE CYCLONIC STORM ON 3<sup>RD</sup> DECEMBER OVER SOUTHWEST BOB. IT IS INDICATING FURTHER INTENSIFICATION. IT IS INDICATING INITIAL WEST-NORTHWESTWARDS MOVEMENT FOLLOWED BY NORTH-NORTHWESTWARDS

MOVEMENT AND CROSSING OVER NORTH ANDHRA PRADESH-SOUTH ODISHA COASTS ON 5<sup>TH</sup> DECEMBER/0300 UTC. ECMWF IS INDICATING FORMATION OF DEPRESSION ON 1<sup>ST</sup> DECEMBER UTC OVER SOUTHEAST BOB. IT IS ALSO INDICATING INTENSIFICATION INTO CYCLONIC STORM ON 3<sup>RD</sup> DECEMBER OVER SOUTHWEST BOB AND FURTHER INTENSIFICATION INTO VERY SEVERE CYCLONIC STORM. IT IS INDICATING CROSSING OVER NORTH ANDHRA PRADESH-SOUTH ODISHA COASTS, BUT ON 5<sup>TH</sup> DECEMBER NEAR KAKINADA AS AN INTENSE CYCLONE. SIMILARLY, NCM IS INDICATING FORMATION OF LOW PRESSURE AREA ON 1<sup>ST</sup> DECEMBER OVER SOUTHEAST BOB WITH WEST-NORTHWESTWARDS MOVEMENT AND DEPRESSION OVER SOUTHWEST BOB ON 2<sup>ND</sup> DECEMBER OVER SOUTHWEST BOB. IT IS ALSO SUGGESTING FURTHER INTENSIFICATION INTO A CYCLONIC STORM ON 4<sup>TH</sup> DECEMBER. IMD MULTI MODEL ENSEMBLE (MME) IS INDICATING FORMATION OF DEPRESSION AROUND 30<sup>TH</sup> NOVEMBER. THEREAFTER, THE SYSTEM IS INDICATED TO INTENSIFY INTO A CYCLONIC STORM ON 2<sup>ND</sup> DECEMBER OVER SOUTHEAST BOB. MODEL IS INDICATING INTENSIFICATION UPTO SEVERE CYCLONIC STORM STAGE AND RAPID WEAKENING BEFORE LANDFALL. LANDFALL IS INDICATED OVER NORTH ANDHRA PRADESH-SOUTH ODISHA COASTS ON 5<sup>TH</sup> DECEMBER AS A CYCLONIC STORM.

CONSIDERING ALL THE ABOVE, THE LOW-PRESSURE AREA OVER SOUTH ANDAMAN SEA IS LIKELY TO MOVE WEST-NORTHWESTWARDS AND INTENSIFY INTO A DEPRESSION OVER SOUTHEAST BAY OF BENGAL AROUND 30TH NOVEMBER, 2023. THEREAFTER, IT IS LIKELY TO MOVE NORTHWESTWARDS AND INTENSIFY FURTHER INTO A CYCLONIC STORM OVER SOUTHWEST & ADJOINING SOUTHEAST BAY OF BENGAL DURING SUBSEQUENT 48 HOURS.

(M. SHARMA)  
SCIENTIST-D  
RSMC NEW DELHI



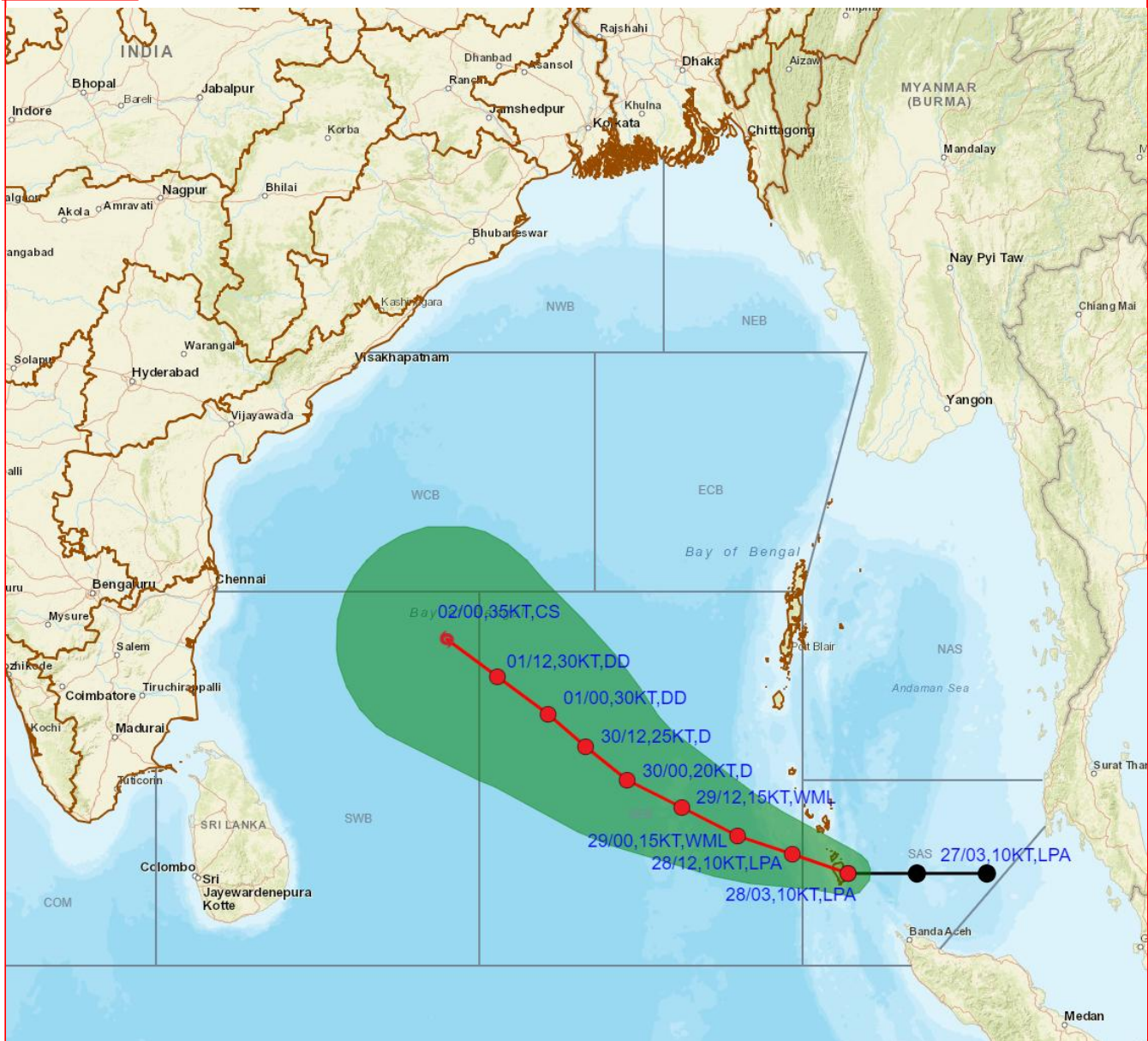


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**PREGENESIS TRACK FORECAST ALONGWITH CONE OF UNCERTAINTY IN ASSOCIATION WITH LOW PRESSURE AREA OVER SOUTH ANDAMAN SEA BASED ON 0300 UTC (0830 IST) OF 28<sup>TH</sup> NOVEMBER 2023.**



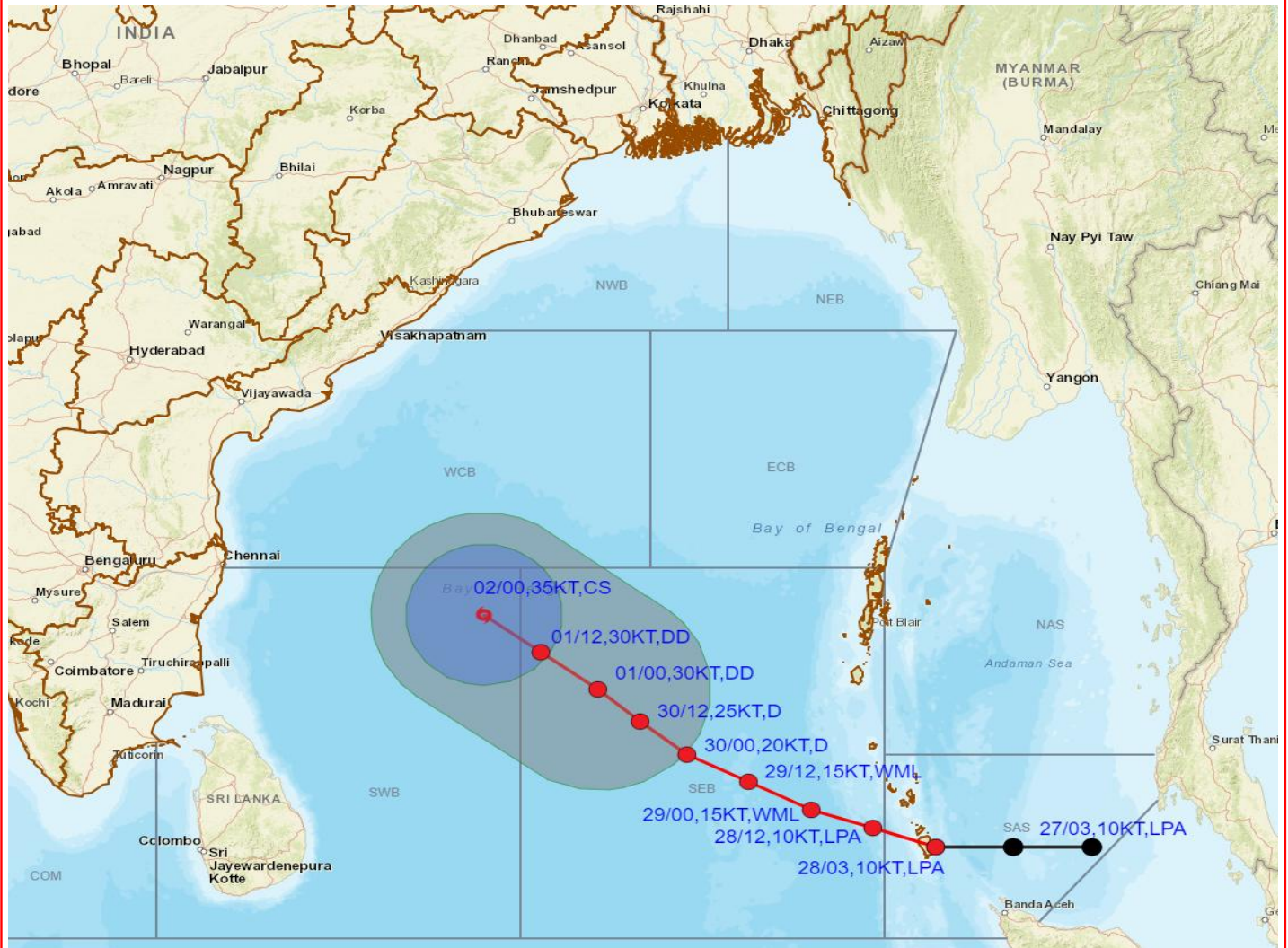
DATE/TIME IN UTC  
 IST=UTC + 0530  
 L: LOW PRESSURE AREA  
 WML: WELL MARKED LOW PRESSURE AREA  
 D: DEPRESSION (17-27 KT)  
 DD: DEEP DEPRESSION (28-33 KT)  
 CS: CYCLONIC STORM (34-47 KT)  
 SCS: SEVERE CYCLONIC STORM (48-63KT)  
 VSCS: VERY SEVERE CYCLONIC STORM (64-89 KT)  
 ESCS: EXTREMELY SEVERE CYCLONIC STORM (90-119 KT)  
 SuCS: SUPER CYCLONIC STORM (≥ 120 KT)

- LESS THAN 34 KT
- 34-47 KT
- ≥ 48 KT
- OBSERVED TRACK
- FORECAST TRACK
- CONE OF UNCERTAINTY





**PREGENESIS TRACK FORECAST ALONG WITH QUADRANT WIND DISTRIBUTION IN ASSOCIATION WITH LOW PRESSURE AREA OVER SOUTH ANDAMAN SEA BASED ON 0300 UTC (0830 IST) OF 28<sup>TH</sup> NOVEMBER 2023.**



DATE/TIME IN UTC  
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 WML: WELL MARKED LOW PRESSURE AREA  
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● LESS THAN 34 KT  
 ○ 34-47 KT  
 ⊙ ≥ 48 KT  
 — OBSERVED TRACK  
 — FORECAST TRACK  
 ● CONE OF UNCERTAINTY  
 AREA OF MAXIMUM SUSTAINED WIND SPEED:  
 ■ 28-33 KT (52-61 KMPH)  
 ■ 34-49 KT (62-91 KMPH)  
 ■ 50-63 KT (92-117 KMPH)  
 ■ ≥ 64 KT (≥118 KMPH)

**IMPACT OVER THE SEA**

MSW (knot/kmph)	Impact	Action
28-33 (52-61)	Very rough seas	Total suspension of fishing operations
34-49 (62-91)	High to very high seas	Total suspension of fishing operations
50-63 (92-117)	Very high seas	Total suspension of fishing operations
≥ 64 (≥118)	Phenomenal	Total suspension of fishing operations

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